



## Portland white cement



© BSN 2004

Copyright are protected by law. Prohibited to copy or duplicate some or all of the contents of this document in a way and in any form and may not distribute this document either electronically or printed without written permission from BSN

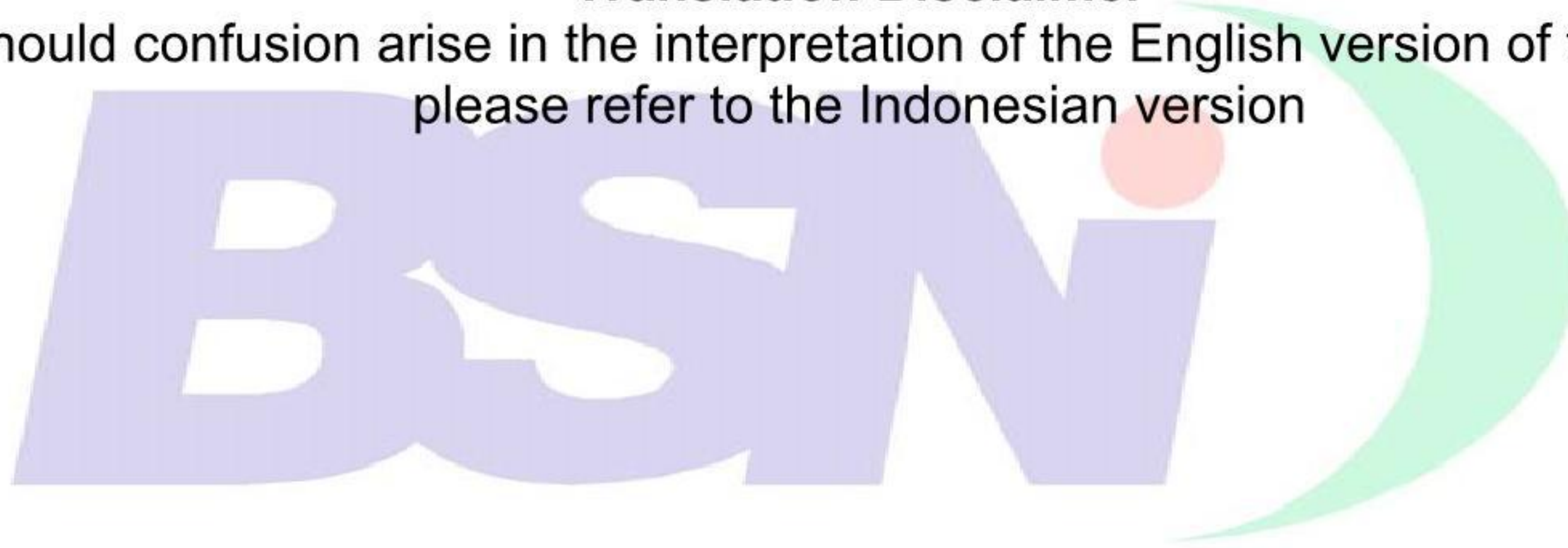
BSN  
Gd. Manggala Wanabakti  
Blok IV, Lt. 3,4,7,10.  
Telp. +6221-5747043  
Fax. +6221-5747045  
Email: [dokinfo@bsn.go.id](mailto:dokinfo@bsn.go.id)  
[www.bsn.go.id](http://www.bsn.go.id)

Published in Jakarta



### **Translation Disclaimer**

Should confusion arise in the interpretation of the English version of this SNI,  
please refer to the Indonesian version

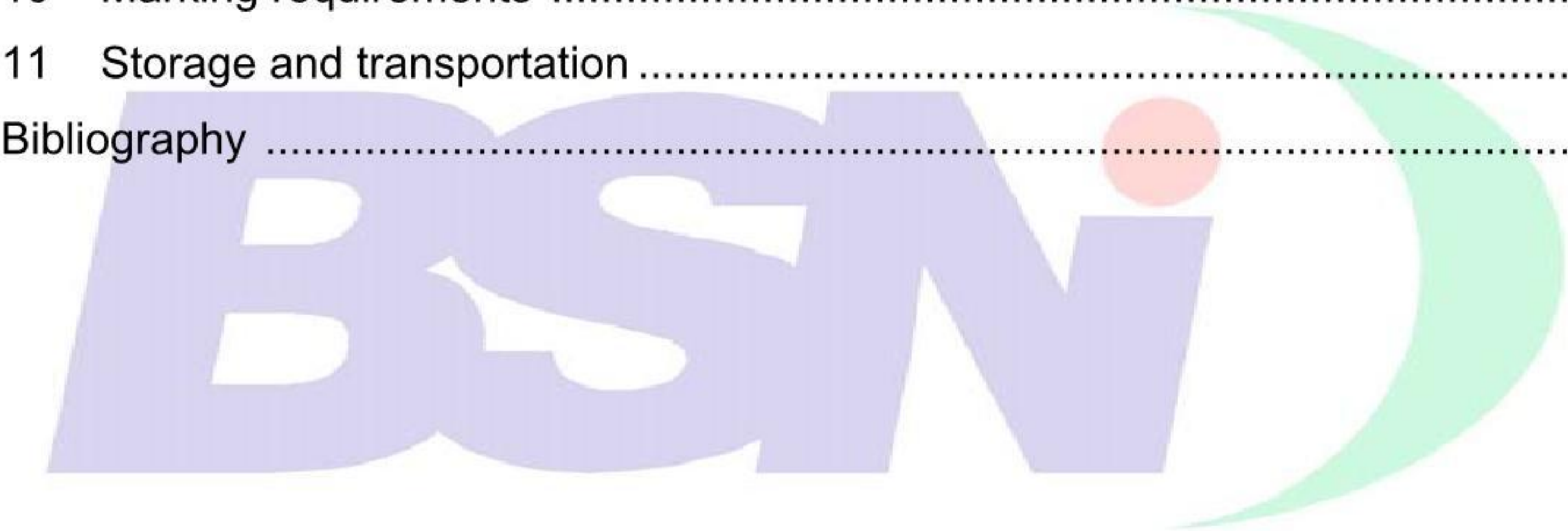






Content

Content .....	1
Foreward.....	1
1 Scopes .....	1
2 Normative references .....	1
3 Terms and definitions .....	1
4 Utilizing .....	1
5 Quality requirements.....	1
6 Sampling methods .....	2
7 Testing methods .....	2
8 Tested passing requirements .....	5
9 Packaging .....	5
10 Marking requirements .....	5
11 Storage and transportation .....	5
Bibliography .....	6



"Hak Cipta Badan Standardisasi Nasional, copy standar ini dibuat untuk penayangan di website Akses SNI dan tidak untuk dikomersilkan"



## Foreword

Indonesian National Standard (SNI), *Portland white cement* revises SNI 15-0129-1998. This standard is revised because there are some changes on Indonesian National Standard (SNI) portland cement that is the main reference standards. The other reference standard is MS 888:1991, *Specification for Portland white cement*. Harmonization between SNIs and other standards, especially in Asia region will ease both exports and imports on free trade.

*Portland white cement standard* is proposed and formulated by Technical Committee 33S, Inorganic chemistry. The standard is consensus results held in Jakarta on 24 March 2004 and attended by representatives of producers, consumers, associations, testing bodies and governmental institutions.





## Portland white cement

### 1 Scopes

This standard covers scopes, normative references, terms and definitions, utilizing, quality requirements, sampling methods, testing methods, tested passing requirements, packaging, marking requirements, storage and transportation of Portland white cement.

### 2 Normative references

SNI 15-2049-2004, *Portland cement*

### 3 Terms and definitions

#### 3.1

#### Portland white cement

The hydrolyzed white cement is produced by grinding together clinker of Portland white cement consisted of silicate calcium and adding materials consisted of one or more calcium sulphate crystal

### 4 Utilizing

Portland white cement is used for all purposes of cement and concrete mixture making which is not needed particular requirements, except the white colour.

### 5 Quality requirements

Portland white cement must fulfil the chemical and physical requirements described on Table below:

**Table1 The chemical requirements**

No.	Group of testing	Units	Requirements
1.	MgO	%	max. 5.0
2.	SO <sub>3</sub>	%	max. 3.5
3.	Fe <sub>2</sub> O <sub>3</sub>	%	max. 0,4
4.	Glowing loss	%	max. 5.0
5.	Insoluble residue	%	max. 3.0
6.	Alkali equivalent Na <sub>2</sub> O	%	max. 0,6



Tabel 2 The physical requirements

No.	Group of testing	Units	Requirements
1.	Refinement by Blaine tools	m <sup>2</sup> /kg	min. 280
2.	Binding time by Vicat needles - initial binding - end binding	minutes minutes	min. 45 max. 375
3.	Durability by autoclaves - expansion	%	max. 0,80
4.	False set - end penetration	%	min. 50
5.	Whiteness - Hunter lab tools - Kett meter tools	% %	min. 90 min. 80
6.	Pressure strength : 3 days 7 days 28 days	kg/cm <sup>2</sup> kg/cm <sup>2</sup> kg/cm <sup>2</sup>	min. 180 min. 250 min. 350

## 6 Sampling methods

Sampling methods of Portland white cement are based on SNI 15-2049-2004, *Portland cement*.

## 7 Testing methods

### 7.1 Tools and materials

Tools and materials used for chemicals and physical testing are based on SNI 15-2049-2004, *Portland cement*.

### 7.2 Preparing of testing samples

Preparing of testing samples is based on SNI 15-2049-2004, *Portland cement*.

### 7.3 Chemical testing

Chemical testing is based on SNI 15-2049-2004, *Portland cement*.

### 7.4 Physical testing

**7.4.1** Refinement testing by Blaine tools is based on SNI 15-2049-2004, *Portland cement*.

**7.4.2** Binding time testing by Vicat needles is based on SNI 15-2049-2004, *Portland cement*.



**7.4.3** Durability testing by autoclaves is based on SNI 15-2049-2004, *Portland cement*.

**7.4.4** False set testing used paste method is based on SNI 15-2049-2004, *Portland cement*.

#### **7.4.5 Whiteness testing**

##### **7.4.5.1 Whiteness testing by Kett meter tools**

###### **7.4.5.1.1 Sample preparation**

- a) heap the amount of dry cement into ring mold having diameter 30 mm and height 3 mm (or with the other mold on kett meter tools) placed on a clean glass plate;
- b) press slowly using the other glass plate so that density of the cement compressed close on standard density of the MgO;
- c) raise slowly the ring including cement which is compressed inside;
- d) prepare two testing materials for measurement of whiteness degree.

###### **7.4.5.1.2 Work method**

###### **A. Reading a standard is done as follow:**

- a) put the standard box into sample compartments;
- b) read the standard whiteness degree of magnesium oxide using read/blue/green filter and manage the tool reading in order to get the same specification of the whiteness degree of each filter;
- c) the value of each filter is based on Table 3;
- d) If the result of the reading a standard using the certain filter is not the same with the specification, the tools need to reset zero value using light-blind filter;

###### **B. Reading the cement sample is done as follow:**

- a) put cement sample which has been compressed with regard to sample preparing procedures into the sample box;
- b) put the sample box into sample compartment, read whiteness degree of the sample;
- c) value on the tool display is value of whiteness degree of sample



**Tabel 3 Relation of whiteness degree and filter**

Filter colour	Whiteness degree
Red	$79.6 \pm 0,1$
Blue	$86.6 \pm 0,1$
Green	$86.7 \pm 0,1$

**7.4.5.1.3 Report**

Report the average of two (2) testing material reading having the difference not more than two (2) scale number.

**7.4.5.2 Determining whiteness degree using Hunter lab tools****7.4.5.2.1 Sample preparation**

- heap the amount of dry cement into ring mold having diameter 30 mm and height 3 mm (or with the other mold on hunter lab) placed on a clean glass plate;
- press slowly using the other glass plate in order to get the smooth surface and has no cracking.

**7.4.5.2.2 Work method****A. Reading a standard is done as follow:**

- Put a black ceramic standard into Hunter Lab tools for 0 whiteness degree;
- Put a white ceramic standard into Hunter Lab tools for 100 whiteness degree.

**B. Reading the cement sample is done as follow:**

- put a sample prepared into Hunter lab tools;
- read whiteness degree of the sample cement;
- value on the tool display is value of whiteness degree of sample.

**7.4.5.2.3 Report**

Report the average of two (2) testing material reading having the difference not more than two (2) scale number.

**7.4.6** Pressure strength testing is based on SNI 15-2049-2004, *Portland cement*.



## 8 Tested passing requirements

Portland white cement is passed the testing if it fulfills all quality requirements on clausul 5 Quality requirements and tested using methods on clausul 7 Testing method.

## 9 Packaging

**9.1** Portland white cement can be traded in both packages and bulk. If there are not other requirements, cement must be packaged in sacks having 20 kg, 40 kg and 50 kg nett weight in every sack.

**9.2** The lack of weight more than 2% of weight placed on every package is rejected. Average weight of every dispatch represented by weighing 50 packages taken randomly may not be less than weight placed on every package.

## 10 Marking requirements

Packages are included on names at least:

- a) written " Portland white cement";
- b) Merk/trade marks;
- c) Names of companies;
- d) Nett weight.

For Portland white cement, the marking is placed on dispatch documents.

## 11 Storages and transportation

- a) cement is stored and transported so that it is easy to inspect and identify;
- b) bulk cement is stored in building/weather resistance storages so that it is protected from humidity and avoided from cement agglomeration in storages and transportation.
- c) Both storages and transportation of cement in sacks are done so that they are avoided from weather influences.



## Bibliography

MS 888:1984, *Specification for Portland white cement.*



















**BADAN STANDARDISASI NASIONAL - BSN**  
Gedung Manggala Wanabakti Blok IV Lt. 3,4,7,10  
Jl. Jend. Gatot Subroto, Senayan Jakarta 10270  
Telp: 021- 574 7043; Faks: 021- 5747045; e-mail : [bsn@bsn.go.id](mailto:bsn@bsn.go.id)